

Claims

1. A recombinant nucleic acid encoding a fusion protein comprising at least one conditional aggregation domain ("CAD") and at least one additional domain that is heterologous thereto.
2. The recombinant nucleic acid of claim 1 wherein the heterologous domain comprises a DNA binding domain, transcription activation domain, transcription repression domain, cellular localization domain or cellular signaling domain.
3. The recombinant nucleic acid of claim 2 which contains a DNA binding domain which recognizes a naturally-occurring DNA sequence.
4. The recombinant nucleic acid of claim 2 which contains a DNA binding domain which recognizes a non-naturally-occurring DNA sequence.
5. The recombinant nucleic acid of claim 2 which contains a transcription activation domain comprising peptide sequence derived from the transcription activation domain of VP16 or p65.
6. The recombinant nucleic acid of claim 2 which contains a transcription repression domain comprising peptide sequence derived from a KRAB domain.
7. The recombinant nucleic acid of claim 2 which contains a membrane targeting domain.
8. The recombinant nucleic acid of claim 2 which contains a nuclear targeting domain.
9. The recombinant nucleic acid of claim 2 which contains a mitochondrial targeting domain.
10. The recombinant nucleic acid of claim 1 wherein the CAD is or is derived from an immunophilin or cyclophilin.
11. The recombinant nucleic acid of claim 10 wherein the CAD is or is derived from an FKBP.
12. The recombinant nucleic acid of claim 11 wherein the CAD comprises an FKBP domain containing an amino acid replacement for F36 or W59.
13. The recombinant nucleic acid of claim 12 wherein the CAD comprises an FKBP domain

containing the mutation F36M or W59V.

14. The recombinant nucleic acid of claim 1 which contains 2 or more CADs.
15. A fusion protein encoded by a recombinant nucleic acid of any of claims 1-14.
16. A vector comprising a recombinant nucleic acid of any of claims 1-14.
17. The vector of claim 16 wherein the vector is a viral vector.
18. The vector of claim 17 wherein the viral vector is selected from the group consisting of adenovirus, AAV, hybrid adeno-AAV, retrovirus and lentivirus
19. A cell containing a vector of claim 16.
20. The cell of claim 19 wherein the cell is a mammalian cell.
21. The cell of claim 20 wherein the cell is of human origin.
22. The cell of claim 20 wherein the cell is a primary cell.
23. A cell containing a first fusion protein comprising a CAD and a DNA binding domain and a second fusion protein comprising a CAD and a transcription repression domain.
24. The cell of claim 23 which further comprises a target gene operably linked to an expression control sequence to which the DNA binding domain binds.
25. An animal containing a cell of claim 19.
26. An animal containing a cell of any of claims 20-24.
27. A method for regulating transcription of a target gene comprising treating a cell of claim 24 with a ligand which binds to the CAD at a concentration sufficient to induce transcription of the target gene.